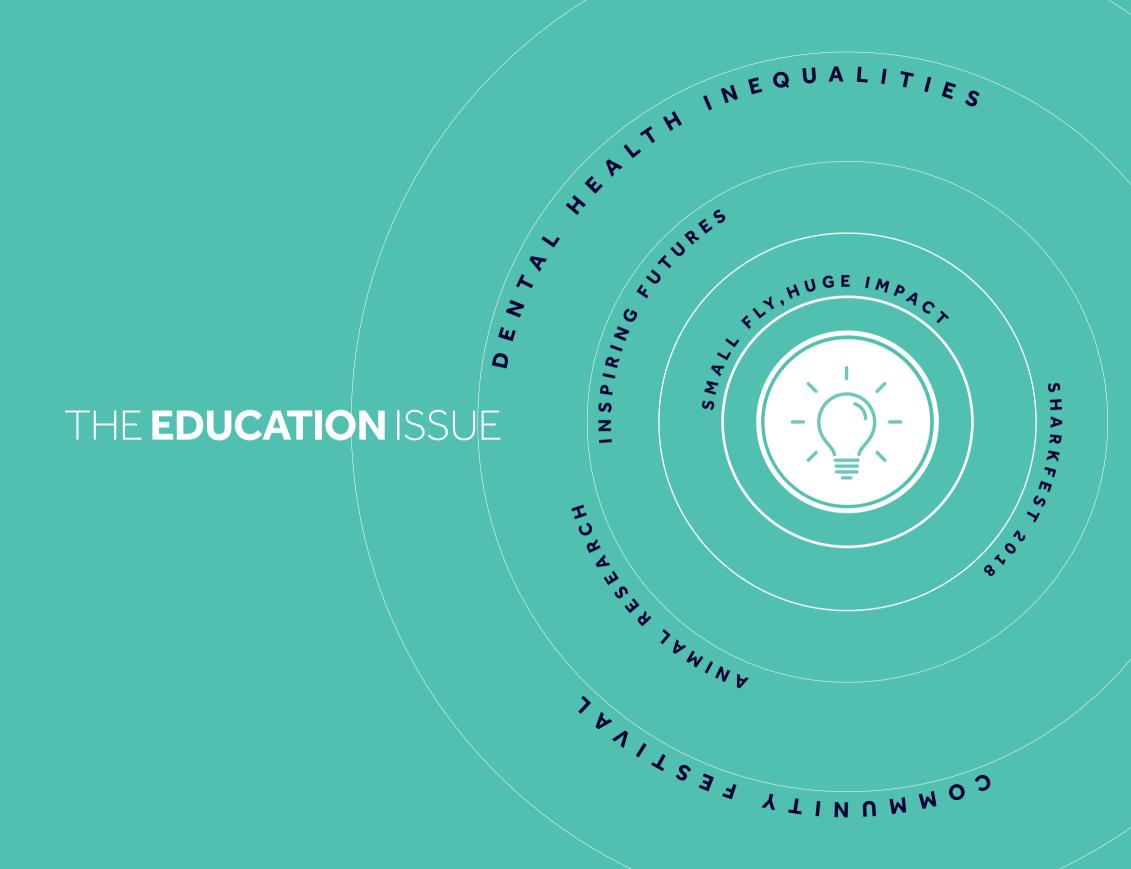


SOCIAL RESPONSIBILITY

AND HEALTH





This edition of our Social Responsibility magazine highlights some of the high impact work delivered through the Faculty of Biology, Medicine and Health's schools engagement strategy. Through our committed students, staff and alumni we enable school students to personally experience the positive impact of our research and teaching on the health and wellbeing of local, national and international communities.

Our obligation to inspire and involve students in healthcare and science careers, with no barriers to studying is described in the following pages. These range from experiencing what it is like to work in a University through our work experience offerings to the multidisciplinary approach in delivering the best treatment possible through our Faculty's

research and teaching of future scientists and clinicians.

This snapshot of our schools outreach programme also includes exploring every healthcare profession involved in a medical emergency, how we involve animals in advancing our research, the role that sharks and fruit flies play in better understanding our biology and our impact on our environment plus also the importance of medical schools in the history and development of the NHS.

We also chart the personal story of one of our undergraduate students who is making a real difference to pupils from more disadvantaged backgrounds through outreach work, enriching not just the pupil's encounters with higher education, but also enriching their own experience too.

In an emergency, healthcare professionals play a pivotal role.

Through the staging of such an emergency, staff and students in the Faculty of Biology, Medicine and Health gave 60 Greater Manchester school pupils first-hand experience of the ways in which different healthcare professionals work together to treat a patient, and learn more about studying health-related subjects at degree level.

A road traffic accident scenario demonstrated how many different fields of expertise are needed to help in the aftermath; including Medicine, Dentistry, Pharmacy, Nursing, Psychology, Optometry, and Public Health. Pupils considered questions that an A&E doctor would ask a patient taken to hospital after a road traffic accident. It was brought to life with an actor playing the patient role, giving the pupils an opportunity to actively engage in a doctor/patient situation. A psychology workshop involved role play between a therapist and patient, allowing the pupils to

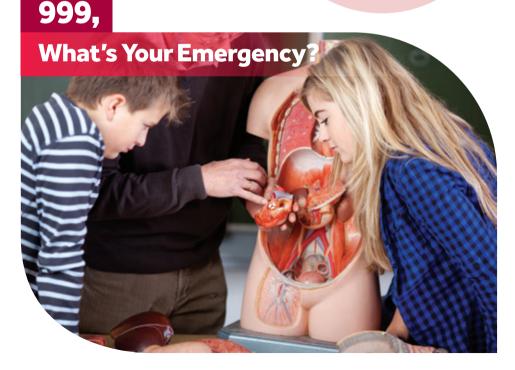
see for themselves how the clinician can help patients overcome and manage trauma.

Network

Pupils had the opportunity to visit a range of specialist subject stalls in a speed-dating style session, giving them a chance to meet University staff and students and discuss undergraduate courses. The event also enabled Faculty staff and students to learn from the pupils.

"I'm always amazed to see how children engage with the activities and the questions they come up with. It's so easy to get stuck in an academic way of thinking, and the children just come out with curve-balls throughout the day!"

Dr. Roger Harrison Public Health workshop organiser



'To celebrate International Women's
Day, the science journalist, Angela
Saini, talked about themes discussed in
her latest book 'Inferior – How Science
Got Women Wrong – and the New
Research That's Rewriting the Story'
and their impact on women today.

The book, which questions gender stereotypes, was named the Physics World Book of the Year and voted runner-up in the Goodreads Choice Awards.

More than 350 people attended the event that was followed by breakout sessions on resilience, sexual harassment in the workplace and personal impact.

"Angela's talk touched on a wide range of issues from patriarchy in Planet of the Apes to the suffragette movement and was truly inspirational. The level of participation, energy and excitement in the room was phenomenal."

> Dr Hema Radhakrishnan, Associate Dean for Social Responsibility

International Women's Day marked by visit from

award-winning

author





University scientists contribute to the prevention, treatment and eradication of a wide range of medical conditions and diseases through research involving animals. Outcomes of Manchester's animal research include reducing symptoms of Parkinson's disease, fighting heart failure, and developing new treatments for psychiatric disorders, arthritis, stroke and inflammatory bowel disease.

The Faculty opened its doors to welcome A-level pupils from Manchester and nearby boroughs to see for themselves what animal research really is and how it is conducted at the University. The annual Animal Research Day promotes transparency about animal research, with a tour of the University's Animal Unit to show the care standards and conditions afforded to the animals involved in our research.

Ethics

Lecturers delivered talks on the use and importance of animals in biomedical research and an interactive workshop delved into the ethics of research involving animals.

The pupils got the chance to explore research involving animals themselves through laboratory practicals. A session on fly research within the Fly Facility, and an exploration into heart development in chick eggs allowed them to experience first-hand the valuable contribution of animals in understanding human biology.

"It has enlightened me as to how safe and humane it is."

"I understand the reasons behind animal testing better"

"I realise that the research is extremely helpful and changes people's lives vastly."

Student comments



To find out more about our research involving animals, visit: www.manchester.ac.uk/research/environment/governance/ethics/animals

The website includes a virtual tour of the animal unit here: www.manchester.ac.uk/research/environment/governance/ethics/animals/virtual-tour

Inspiring Futures



Demonstrating the diversity of healthcare professions was the aim of the day at the third annual 'Charlotte **Beswick: Inspiring Futures' event.** 42 Greater Manchester pupils were given the opportunity to be inspired by Medicine's multidisciplinary nature, held in honour of Charlotte Beswick, the first curator of the University's Museum of Medicine and Health.

With a theme of 'Eye Health and Vision', the day was filled with interactive and educational workshops. It included a presentation on how age affects eyes. The award-winning Manchester artist Lucy Burscough then ran an art workshop introducing how artists and healthcare practitioners can work together to explore health-related themes, such as eye health. A Collections workshop gave the pupils a chance to handle objects from the University's Museum of Medicine and Health, used in the past to treat eyes and to aid vision. The University's careers service delivered a workshop giving pupils scenarios in which

they considered the range of healthcare professionals that might help a patient with poor eye health; giving the pupils an insight into how diverse careers in healthcare can be, from radiologists to receptionists.

A team from optometry ran a session to give hands-on experience with equipment, testing vision and examining optical illusions, and learning more about optometry career options.

Hema Radhakrishnan, Associate Dean for Social Responsibility who is also Reader in Optometry gave a closing speech and certificates were presented to the pupils to acknowledge their involvement, enthusiasm and experience on campus.

One teacher who brought a group of pupils said: "This event was really different; it was so interactive!"

Due to the generous donation of Dr F.B. Beswick, previous Executive Dean of Manchester Medical School, gifted in honour of his wife Charlotte, the first curator of the Museum of Medicine and Health, the event will be repeated in future years.

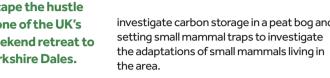
Trinity High School is located in the heart of Manchester amongst our University campus buildings. And so the Faculty gave pupils from the school the opportunity to escape the hustle and bustle of living in one of the UK's biggest cities, for a weekend retreat to Malham Tarn in the Yorkshire Dales.

The pupils were able to talk to PhD students, interns, researchers, professors, and lecturers about careers in science and healthcare.

Field-based, science-oriented activities included a freshwater study to investigate invertebrates in a river, peat coring to

investigate carbon storage in a peat bog and setting small mammal traps to investigate the adaptations of small mammals living in

Students said the one thing that would make the weekend better would be if the trip were longer (and if the weather was warmer!). They agreed they had learnt more about careers in Biology, Medicine and Health, which will hopefully benefit their future progression into these fields.









A varied programme of events was delivered to 30 pupils from four **Greater Manchester schools when** they were welcomed to the University for a week of work experience activities, exploring various fields of Biology, Medicine and Health.

The year 10 pupils were given the chance to experiment in our laboratories; extracting plant pigments from aubergine and spinach, looking at cell structures under microscopes. They also investigated the genetic similarities between flies and people. This lab work gave the pupils a chance to try out some of the equipment and scientific techniques they might use working or studying at the University.

The students also sampled the breadth of available healthcare professions through workshops in Pharmacy, Optometry, Audiology and Midwifery.

Animals

A tour of the animal research facilities was well received and was followed by a debate. opening up an interesting discussion on involving animals in medical research.

One pupil said "The week helped me to understand that there are many different career paths to follow in science. It has also boosted my confidence and taught me how to speak to different people. I enjoyed myself and had a great time; and it has given me a clear view in what I want to do in the future."

The sessions were not simply practical, with students researching different courses offered by the Faculty of Biology, Medicine and Health and creating a communications and marketing strategy to promote subjects to potential undergraduate students.

The week concluded with a careers workshop, group presentations and a mini graduation ceremony!

Faculty Intern, Ciara Wright, who facilitated the week, said: "As many of the pupils have no family history in Higher Education, it's important for them to see University as somewhere they can belong. The pupils got stuck into Faculty life with incredible enthusiasm; it was inspiring to see."

Success for Community Festival

our local

Pharmacy, psychology, midwifery and plant biology were just a few examples of Faculty exhibits at the University's second annual Community Festival.

The event attracted more than 2,000 visitors, with researchers, staff and students delivering over 40 interactive activities, across the University campus.

The day consisted of challenges, experiments and demonstrations, showcasing the research taking place across the University. Staff were on hand to answer questions such as 'What are stem cells?', 'How do medicines get to the disease?', 'How does the body clock work?' and much more.

Visitors had the opportunity to climb aboard a vintage ambulance, handle original medical objects spanning 300 years from the University's Museum of Medicine and Health collection, enjoy a rock climbing wall and join the 'snack and chat' picnic.

Festival Coordinator, Natalie Liddle, said: "The event provided the public with the opportunity to gain a better understanding of the research that the University does in a fun-filled family day, as well as allowing our researchers to share perspectives and be inspired by

"This is the 2nd time community. my daughter and I have been to the University's Community Festival. It's a great day and fantastic way to see all the different things that go on at the University. We really enjoyed it and will be looking out for next

year's Festival!"







Combating dental health inequalities in the North West

Everyone deserves access to dental treatment and care, but for many people in deprived areas accessing treatment isn't easy. Dental health inequality is high in the UK, and a third of five year olds in the North West suffer from tooth decay.

At the University of Manchester our dental students are working hard to eradicate dental health inequalities in our local communities and abroad. All dental students provide essential treatment to low income and homeless patients as an integral part of their training. A record number of students are also choosing to volunteer with projects to improve dental health, both in Greater Manchester and overseas.

Clinic

The Emergency Dental Clinic provides free of charge treatment to around 2,000 patients a year who cannot afford to go to the dentist. This treatment is provided by our fifth year dental students supervised by staff at the Dental Hospital.

Dr Raj Ariyaratnam, Senior Clinical Lecturer and Social Responsibility lead for the Division of Dentistry, says:

"We are able to manage the pain of people who would not receive treatment otherwise. At the same time this is a great opportunity for the students to learn. Students are able to learn through helping people. They can get the satisfaction of treating someone's

real pain while getting direct service learning experience."

'Humanising Dentistry', a project also led by Dr Raj Ariyaratnam which integrates service learning throughout the curriculum in combatting dental health inequalities, was recognised to be amongst the seven best projects in the world, judged by the Talloires Network's MacJannet prize for Global Citizenship.

This prestigious prize recognises exceptional student community engagement and community service across the world.

Since 2006, 900 dental students have treated 38,720 paediatric and 140 800 adult patients in the most deprived areas of England.

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on the farm'



Human antibiotic resistance has been seen in the news over the last few months; Dr Roger Harrison and Dr Joanne Pennock have taken their awareness campaign further by devising a project named 'OUTBREAK on the Farm'.

This new campaign demonstrates the impact of the farming and agricultural sector on antibiotic resistance. The games are based on the principle of scavenger hunts and use an application called ActionBound to simulate an antibiotics resistance epidemic in the real world. Funding from The University of Manchester Intellectual Property Team's Ignite grant enabled this and it will support the continued development of the innovative game-based activity 'OUTBREAK' to educate children and families about antibiotic drug resistance.

The game will be piloted at local farm open days and will also be used in schools and zoos.

Funding received for thought-provoking 'Death and Birth in my Life' Arts Project

The Oglesby Charitable Trust funded the Faculty of Biology, Medicine and Health to produce a new piece of public art, 'Death and Birth in My Life', by award-winning artist, Mats Staub, in collaboration with the SICK! Festival.

SICK! Festival places art at the heart of positive health and health at the heart of outstanding art. Through creation, presentation and public conversation, the group empower diverse communities to confront the physical, mental and social challenges that are faced in individual and collective lives.

The artwork will raise awareness and understanding of issues arising from critical care through personal stories, enabling the widest possible audience to gain a deeper understanding of the emotional and ethical issues.

> "We are so grateful to the Oglesby Trust for their support for their support for our work in raising awareness of end of life issues in the Greater Manchester Community."

Professor Mahesh Nirmalan, Vice-Dean for Social Responsibility.

Trailing the **Greenland shark**



Our researchers study the physiologythe science of how living things work of cold-blooded animals such as sharks to apply knowledge to cardiac health and disease and to help predict how they respond to environmental change and stressors.

A Manchester team recently took part in an international expedition to Greenland to study the Greenland shark, an animal that can live for hundreds of years, roaming the deep dark Arctic waters. Extensive data collected will help scientists to understand better how Greenland sharks can age without developing diseases associated with human ageing like cancer and heart disease, which could lead to future new therapies.

Closer to home, five FBMH students from the Shiels Lab shared their scientific knowledge at 'SharkFest', the UK's only festival dedicated

to shark and ray enthusiasts. The focus of the festival was on how changing oceans affect the sharks, which are the marine ecosystem's most iconic predators.

The students answered audience questions on topics such as plastic pollution, the sharkfinning industry, and most notably, "How do I get to be a shark scientist too?!"

Dr Shiels commented: "Sharks are in peril worldwide and many aspects of their biology that could aid conservation efforts are still unknown. I am thrilled and often awed by the time, energy and commitment my students show to studying these animals and raising awareness of their plight with the public."

Over the coming years, the Shiels lab will be investigating the effects of climate change on the behaviour, physiology, and fitness of sharks, and will return to SharkFest in the future to share their findings with the community.

Small fly, huge impact





Shaking epileptic flies into a seizure is not your average biology lesson; it is, however, just one of the activities taking place with a group of schools in Lancashire. 12 schools across mixed socioeconomic neighbourhoods have joined together to form a collaboration with the Faculty of Biology, Medicine and Health to engage pupils in science and Higher Education.

Professor Andreas Prokop and his team have been working with Scarisbrick Hall School and their local partner schools to host biology classes covering the nervous system, genetics, neurodegeneration and enzymes.

The classes, developed by the droso4schools initiative of the Manchester Fly Facility, use

the fruit fly, *Drosophila* melanogaster, to teach curriculum-relevant biology topics. *Drosophila* is an ideal teaching tool for conveying fundamental concepts of biology, due to many human organs sharing the same common origins, serving the same purpose and often inscribed by the same genes. The flies can even get drunk and addicted to alcohol; assisting research into addiction - and fly research helps to understand such diseases or conditions.

These hands-on lessons are based around the school curriculum, enabling pupils to secure a deeper understanding of their own classwork as well as how *Drosophila* is used in science, and to gain experience encouraging careers into higher education.

This outreach work has attracted publication in the Public Library of Science, see: https://bit.ly/2N1MP2c

New Instruments of Change

display celebrates medicine at Manchester

The University of Manchester's long history of medical research, teaching and breakthroughs, is now displayed in a new public exhibition within the foyer of the Stopford Building on Oxford Road.

In highlighting Manchester's medical innovations and individuals' contribution to patient care Instruments of Change showcases objects from the University's Museum of Medicine and Health, a unique collection of historical medical objects and instruments.

The display forms part of the NHS at 70 Project, more details of which can be found at https://www.nhs70.nhs.uk/. Here you can listen to the stories featured in the Instruments of Change exhibition, discover more, or share your own NHS story.

Academic Lead for the Museum of Medicine and Health, Dr Carsten Timmermann said: "Few people realise how crucially important medical schools were in the early history of the NHS. We are proud to be able to draw on objects from our collection to illustrate some of the ground-breaking innovations developed at the University of Manchester and highlight these contributions in this ambitious exhibition."

Alternatively, if you are interested in finding out more, or would like to access items from the collection, visit the museum's website at www.bmh. manchester.ac.uk/museum/ or contact medical.museum@manchester.ac.uk



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What's your role within The Faculty of Biology, Medicine and Health?

I study Medicine, and I'm currently intercalating between 3rd and 4th year — taking a year out to study Neuroscience. Neuroscience is very different to Medicine — it's like doing a regular degree, doing lectures and tutorials and having choice in what you study. In medicine you need to learn it all, whilst running around wards, taking blood and bothering nurses.

How do you balance the volunteering with all of the work?

There are no incredible organisational skills involved, I'm just spinning plates! I have an amazing team – if I'm ever out of my depth I can message them and they're all so willing to help.

Tell us more about MOMs.

Manchester Outreach Medics is a society that aims to get kids from disadvantaged backgrounds into Medicine, because at the moment people from a higher socioeconomic background make up a much larger proportion of the course; mainly because the medical application process is extremely difficult – there are a hundred million things you need to do.

You can pay for courses to practice for exams and get interview skills, and if your parents studied medicine they're familiar with the process, so people from a higher socioeconomic background are much better prepared; which isn't fair. It's also not appropriate as it's important to be able to identify with every patient you treat so we need doctors from a range of backgrounds. Doctors from more disadvantaged areas also tend to go back and practice in those

areas; which are the areas that need the healthcare the most. So MOM's is striving to benefit our society whilst giving pupils from more disadvantaged backgrounds the same opportunities as everyone else.

What inspired you to join MOM's?

I'm from a council estate in Wakefield, and when I was 11 I got a scholarship from a nearby private high school. This school had the resource to support pupils into higher education and studying at Oxbridge or studying medicine. The more I've grown up and the more I've had insight into this, I've realised that all of the opportunities I was ever given was because of a stroke of luck when I was 11, picked from a class of 200 kids leaving 199 kids without the same opportunity. I wanted everyone to have the same opportunity that I had.

What's your favourite thing about being at the University of Manchester?

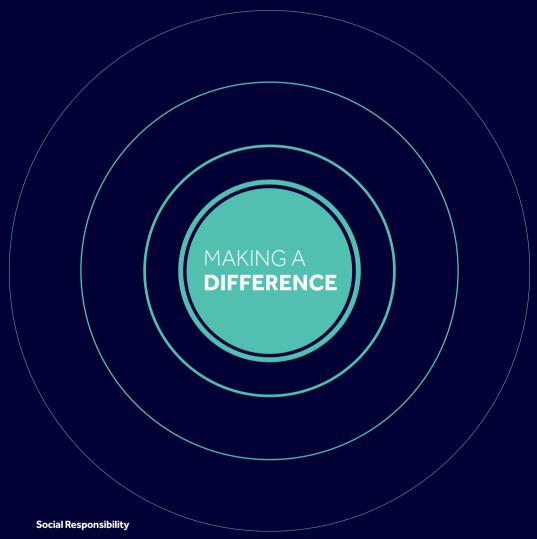
I love the diversity of the students; all cultures and ethnicities and backgrounds, people from places you've never heard of speaking languages you've never heard of. Manchester is a beautifully diverse city and we try to reflect that in our society so that every pupil has a role model; so that we can connect to everyone.

In between all the work you do, do you have any hobbies?

I play the piano – although I don't get to play much at Uni as I've not yet managed to drag a piano down the M62! To be honest, MOM's is my hobby – I love teaching, helping these pupils, delivering the events, and making a difference. And I love shopping!



The University of Manchester



Faculty of Biology, Medicine and Health University of Manchester Oxford Road Manchester M13 9PL

For further information or to get involved please contact:

srbmh@manchester.ac.uk

www.bmh.manchester.ac.uk/connect/social-responsibility

BIOLOGY, MEDICINE & HEALTH ENGAGING WITH OUR STAKEHOLDERS